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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/635,116 08/09/00 HUANG

S 05516/056002

EXAMINER

022511
ROSENTHAL & OSHA LLP
SUITE 4550
700 LOUISIANA
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TM02/0809

FILE NO.

ART UNIT

PAPER NUMBER

2123

DATE MAILED:

08/09/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/635,116

Applicant(s)
HUANG et al.

Examiner
RUSSELL FREJD

Art Unit
2123



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Aug 9, 2000
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirements.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

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Examination of Application #09/635,116

1. Claims 1-28 of application 09/635,116, filed on 9-August-2000, are presented for examination. This application is a continuation of co-pending application 09/524,088, filed on 13-March-2000.

Claim Rejections under 35 U.S.C. § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The invention claims (claim 1 preamble), "*A method for determining an axial force acting on each one of a plurality of roller cones on a roller cone drill bit during drilling.*"

4. The Manual Patent Examining Procedure (hereinafter MPEP) provides, in Section 2106(IV)(B)(2)(b), that to be statutory, the invention must be analyzed in view of whether or not it can be classified as a series of steps to be performed on a computer, wherein the steps of the process are evaluated to determine if they perform Independent Physical Acts or Manipulate Data Representing Physical Objects or Activities, in order to achieve a practical application; and if not, does the invention merely manipulate an abstract idea or solve a purely mathematical problem without any limitation to a practical application.

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MPEP Section 2106(IV)(B)(2)(b)(I) further provides that, in regard to Independent Physical Acts (Post-Computer Process Activity), a process is statutory if it requires physical acts to be performed outside the computer independent of and following the steps to be performed by a programmed computer, where those acts involve the manipulation of tangible physical objects and result in the object having a different physical attribute or structure. Furthermore, the Manipulation of Data Representing Physical Objects or Activities (Pre-Computer Process Activity) defines a statutory process as one that requires the measurements of physical objects or activities to be transformed outside of the computer into computer data, where the data comprises signals corresponding to physical objects or activities external to the computer system, and where the process causes a physical transformation of the signals which are intangible representations of the physical objects or activities.

5. In view of the foregoing, and other considerations, the Examiner respectfully contends that the claims of the present invention do not meet the criteria established above for a statutory process. The reasoning behind this determination is:

5.1 The claimed invention, "*A method for determining an axial force acting on each one of a plurality of roller cones on a roller cone bit during drilling*", does not require physical acts to be performed outside the computer, those acts being independent of and following the steps to be performed by the computer, those acts further involving the manipulation of tangible physical objects which result in the object having a different physical attribute or

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structure. For this reason, the claimed invention does not meet the Independent Physical Acts (Post-Computer Process Activity) requirement.

5.2 Further In regard to independent claim 1, the Examiner respectfully contends that the claims fail to require measurements of physical objects to be transformed outside of the computer into computer data; and thereby do not meet the Manipulation of Data Representing Physical Objects or Activities (Pre-Computer Process Activity) requirement.

5.3 MPEP Section 2106(IV)(B)(2)(b)(ii) provides that a statutory computer process is determined not by how the computer performs the process, but by what the computer does to achieve a practical application. For example, a computer process that simply calculates a mathematical algorithm that models noise is nonstatutory, while a claimed process for digitally filtering noise employing the mathematical algorithm is statutory. The long line of cases in this area that are referred to in MPEP Section 2106(IV)(B)(2)(b)(ii) exemplify this requirement, by utilizing in the claim language, terms such as controlling, executing, changing and removing. In view of the aforementioned requirement, the Examiner respectfully contends that the claim language of independent claims 1, 5, 10, 16 and 22 do not claim a practical application, that language claiming a method for: (in claim 1) **calculating** (emphasis added) an axial force acting on each of the cutting elements, incrementally **recalculating** the axial forces, repeating the **recalculation** of the axial forces for a selected number of incremental rotations, and **combining** the axial forces acting on the cutting elements.

5.4 For at least these reasons, the Examiner respectfully posits that the claims of the present invention do not meet the criteria for a statutory process. Accordingly, the method

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for determining an axial force acting on each one of a plurality of roller cones on a roller cone bit during drilling is determined to be a method consisting solely of mathematical operations, converting one set of numbers (the geometry of the roller cone cutting elements and the earth formation being drilled) into another set of numbers (the combined axial force on the cutting elements), whereby the method does not manipulate appropriate subject matter, and thus cannot constitute a statutory process (MPEP Section 2106(IV)(B)(2)(c)).

Response Guidelines

6. A shortened statutory period for response to this action is set to expire **3 (three) months and 0 (zero) days** from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02, 710.02(b)).

7. **Any response to the Examiner in regard to this non-final action should be**

directed to: Russell Frejd, telephone number (703) 305-4839, Monday-Friday from 0630 to 1500 ET, or the examiner's supervisor, Kevin Teska, telephone number (703) 305-9704. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to: Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to: (703) 308-9051 (for formal communications intended for entry), or (703) 308-1396 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Date: 7-August-2001

Russell Frejd

RUSSELL W. FREJD
PATENT EXAMINER